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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/940,984	08/29/2001	Shin Tamata	ASA-1028	5968

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MATTINGLY, STANGER & MALUR, P.C.  
ATTORNEYS AT LAW  
Suite 370  
1800 Diagonal Road  
Alexandria, VA 22314

EXAMINER

NGUYEN, NGOC YEN M

ART UNIT PAPER NUMBER

1754

DATE MAILED: 05/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/940,984

Applicant(s)

TAMATA ET AL.

Examiner

Ngoc-Yen M. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 2-4, 6-8, 17 and 18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-4, 6-8, 17 and 18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-4, 6-8, 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0 885 648 or Rossin et al (6,069,291), either one in view of EP '918 and further in view of Manchak, Jr (4,980,090) or Kojima (5,605,400).

EP '648 discloses a method of treatment for decomposing fluorine compounds, comprising the step of contacting a gas flow containing said fluorine compounds with fluorine compound-decomposition catalyst in the presence of steam to convert said fluorine compounds to hydrogen fluoride (note claim 1). The fluorine compounds contains at least one fluorine compound selected from  $\text{CF}_4$ ,  $\text{C}_2\text{F}_6$ ,  $\text{C}_3\text{F}_8$ , etc. (note claim 2). These are perfluorocarbons as required in the instant claims. EP '648 further discloses that the gas flow containing HF is neutralized by scrubbing with an aqueous alkali solution (note claim 5). The gas flow containing fluorine compounds can come from a semiconductor etching process (note page 5, lines 15-16).

Alternatively Rossin '291 can be applied as stated below.

Rossin '291 discloses a process for the decomposition of perfluoroalkanes to HF and  $\text{CO}_2$ , said process comprising contacting the perfluoroalkanes with a catalyst composition consisting essentially of aluminum oxide, cobalt and zirconia (note claim 1).

The perfluoroalkanes are generated during electrolytic aluminum smelting, or during semiconductor manufacture (note column 3, lines 48-54). Rossin '291 teaches that if the concentration of hydrofluoric acid in the effluent stream is deemed unacceptable, conventional collection or abatement processes, such as caustic scrubbing, may be employed to avoid venting acid gases directly into the atmosphere (note column 5, lines 44-48).

The differences are EP '648 or Rossin '291 does not disclose the step of "separating mists contained in the discharged gas by whirling of the discharge gas" and the use of an ejector.

EP '918 discloses a process for treating exhaust gases, comprising a step of introducing exhaust gases into an aqueous alkaline liquid in an aeration stirring tank while stirring the liquid, and a step of removing harmful gases from the gases discharged from the aeration stirring tank (note claim 1), wherein said removal step comprises a process of allowing the gases discharged from the aeration stirring tank to come into contact with an aqueous liquid (note claim 2). EP '918 discloses that the exhaust gases come from semiconductor production industry, such exhaust gases contain unreacted gases (i.e.,  $\text{CF}_4$ , among others), as well as decomposition products (note page 2, paragraph [0002]). As shown in Figure 1 and described on page 4, the semiconductor production exhaust gas 1 is allowed to come into contact with the alkaline washing liquid 4, with the water 15 or the alkaline solution 3 in the aeration stirring tank 5. The alkali-treated exhaust gas 6 is passed to gas-liquid contact device 7, a demister 9 is provided at the outlet of the water shower in order to prevent the

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sprayed water from flying into subsequent stages (note page 7, lines 14-15), and a suction device 12 is used to discharged the treated gas 13 into the atmosphere. The suction device 12 can be an ejector type suction device (note page 5, lines 52-54).

EP '918 fairly teaches that after a scrubbing process, it is well known to use a demister to prevent the spraying water from flying into subsequent stages and to use an ejector to release the treated gas into the atmosphere.

In the event that the demister as disclosed in EP '918 does not "whirling" action, EP '918 does not clearly disclose the type of demister used, however, it would have been obvious to one of ordinary skill in the art to use any known, commercially available means in the art in the process of EP '918 in order to achieve the desired effect, i.e., to perform the separation of the liquid from the gas, such as a cyclone demister, which is taught by Manchak '090 as a known and available apparatus in the art for separating liquid from a gas (note Figure 4, column 3, lines 65-68). The use of a cyclone would inherent produce a "whirling" action as required in the instant claims.

Alternatively, Kojima '400 is applied to teach that it is known in the art that gas-liquid separating apparatus can be demister, a cyclone or a packed tower or the like (note column 6, lines 34-36). It would have been obvious to one of ordinary skill in the art to use a cyclone instead of a demister in the process of EP '918 because the substitution of art recognized equivalents as shown by Kojima '400 would have been within the level of ordinary skill in the art.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to use a demister and an ejector as suggested by EP '918 in the

process of EO '648 or Rossin '291 because such use is conventional and known in the art to prevent the spraying water from flying into subsequent stages and to release the treated gas into the atmosphere.

Applicant's arguments filed February 9, 2004 have been fully considered but they are not persuasive.

The rejections over EP '524 are withdrawn in view of the filing of the official translation of the priority document.

Applicants argue that EP '648 and Rossin do not disclose or suggest the whirling of the discharged gas to separate the mists containing the discharged gas.

These references are not relied upon to teach or suggest such feature. As stated in the above rejection, EP '918 teaches the desire of removing liquid from the gas and Manchak '090 or Kojima '400 can be applied to teach that cyclone can be used to carry out the removing step.

Applicants argue that EP '918 does not disclosing the whirling of this discharged gas to separate the mists contained in the discharged gas.

EP '918 clearly teaches the desire of removing the liquid (i.e., mists) from gas and it would have been obvious to one of ordinary skill in the art to use any commercially available demister, such as a cyclone demister as suggested by Manchak '090 or any art recognized equivalents of a demister, such as a cyclone as suggested by Kojima '400 to remove the liquid from the gas as desired by EP '918. Without a

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showing of unexpected result or criticality, the use of a cyclone to produce a whirling action is not seen as a patentable difference.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

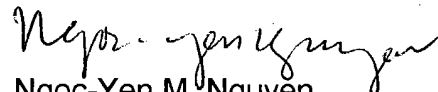
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ngoc-Yen M. Nguyen whose telephone number is (571) 272-1356. The examiner is currently on Part time schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Stan Silverman can be reached on (571) 272-1358. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed (571) 272-1700.

  
Ngoc-Yen M. Nguyen  
Primary Examiner  
Art Unit 1754

nmn  
April 30, 2004

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